

# NYASALAND PROTECTORATE

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## Annual Medical Report

ON THE

# HEALTH AND SANITARY CONDITION

OF THE

# NYASALAND PROTECTORATE

FOR THE

YEAR ENDED 31st DECEMBER, 1918.

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OFFICE OF THE PRINCIPAL MEDICAL OFFICER,  
ZOMBA,  
NYASALAND PROTECTORATE.

*28th August, 1919.*

Sir,

I have the honour to submit for the information of His Excellency the Governor, and for transmission to the Right Honourable the Secretary of State, the Medical Report on the Health and Sanitary Condition of the Nyasaland Protectorate for the year 1918, together with the Returns, etc., appended thereto.

I have the honour to be,

Sir,

Your obedient servant.

H. HEARSEY, *Lt.-Col.*,  
*Principal Medical Officer.*  
*Nyasaland Protectorate.*

To

THE HON'BLE THE CHIEF SECRETARY,  
ZOMBA.



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# NYASALAND PROTECTORATE.

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## ANNUAL MEDICAL REPORT

FOR THE YEAR ENDED THE 31st DECEMBER, 1918.

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### 1. ADMINISTRATIVE. STAFF.

*The Medical Staff* consisted of:—

The Principal Medical Officer.

5 Medical Officers, and

2 „ „ seconded from the West African  
Medical Staff.

*The Nursing Staff* comprised:—

The Matron.

3 Nursing Sisters.

*P.M.O.'s Office*:—One 2nd grade Clerk.

*Subordinate Staff*:—1 Second Class Senior Sub-Assistant Surgeon.

2 First Class Sub-Assistant Surgeons.

### PRINCIPAL APPOINTMENTS AND CHANGES DURING THE YEAR.

New Appointment:—Dr. W. A. Lamborn was appointed to the medical staff on the 13th July, 1918, but he was serving at the time in German East Africa and his services were not available in Nyasaland till the following year.

Leave:—Matron R. Paterson was given leave in South Africa. She left on the 3rd August, 1918, and resumed duty on the 17th October, 1918.

Transfers:—Dr. H. S. Stannus to German East Africa in June, 1917, since which period his services have not been available in Nyasaland.

Invalidings:—Dr. R. Bury was invalided to England in May.

Nursing Sister Pallot was invalided to England in January.

Senior Sub-Assistant Surgeon Bir Singh was invalided to India in March.

Deaths:—Nil.

### DISPOSITION OF THE MEDICAL STAFF IN 1918.

#### *A. Medical Staff.*

#### I. ON CIVIL AND MILITARY DUTY.

Dr. H. Hearsey, P.M.O.            |            Dr. A. G. Eldred.

#### II. ON MILITARY DUTY WITH NYASALAND FIELD FORCE.

Dr. G. M. Sanderson, from January to July.

Dr. R. Bury, from January to May.

Dr. H. E. Arbuckle, from January to August.

Dr. E. J. Quirk, from January to December.

#### III. ON CIVIL DUTY.

(a). At Port Herald:—

Dr J. E. S. Old.

(b). At Blantyre :—

Dr. J. B. Davey.

(c). At Karonga :—

## On Plague Duty.

Dr. H. E. Arbuckle, from August to December.

(d). At Dedza:—

## On Small-pox Duty.

Dr. G. M. Sanderson, from July to December.

*B. Nursing Staff.*

## 1. ON CIVIL AND MILITARY DUTY.

At Zomba :—

Miss S. M. Symonds.

## II. ON MILITARY DUTY WITH NYASALAND FIELD FORCE.

Miss R. Paterson, from January to July.

Miss A. A. Pallot, from January to February.

### III. ON CIVIL DUTY.

At Blantyre :—

Miss M. Farrow, from January to June.

Miss R. Paterson, from October to December.

In the intervening period between June and October Mrs. Usher, who had been temporarily engaged, was on duty.

C. *Sub-Assistant Surgeons.*

## I. ON CIVIL AND MILITARY DUTY.

At Zomba :—

S.A.S. Varyam Singh.

## II. ON MILITARY DUTY WITH NYSALAND FIELD FORCE.

Senior S.A.S. Bir Singh, from January to March.

S.A.S. Kishan Singh.

## MILITARY STAFF.

Since the early part of the year 1916, when a general advance was made by the Nyasa-Rhodesia Field Force into German East Africa, the Principal Medical Officer of Nyasaland has had the sole and independent direction of all medical arrangements connected with the operations of this Force until its demobilization.

Commencing with a personnel of some sixty Officers and other Ranks in 1916, the Distribution States for 1918 give the following numbers on the employed list:—

Military Personnel.	Total Number.	Average Number.
Administrative Officers ... ..	6	4
Medical Officers ... ..	83	57
Dental Officers ... ..	5	3
Nursing Sisters ... ..	29	23
Warrant Officers ... ..	15	11
N.C.O's and Men ... ..	520	315
Assistant Surgeons... ..	2	2
Sub-Assistant Surgeons ... ..	10	7
Total	670	422



In order of numerical superiority, Medical Officers were drawn from the following sources :—

South African Medical Corps.  
 Royal Army Medical Corps.  
 Northern Rhodesia Medical Corps.  
 West African Medical Staff.  
 Nyasaland Medical Staff.  
 Medical Officers attached to local Missions.  
 Uganda Medical Staff.

All the Dental Officers were supplied by the South African Medical Corps. The Nursing Sisters were obtained from the following sources :—

South African Military Nursing Service.  
 Nyasaland Nursing Staff.  
 Northern Rhodesia Nursing Staff.  
 Nurses attached to the local Missions.

With but few exceptions, all the Warrant Officers, N.C.O's and Men were drawn from the South African Medical Corps.

The Assistant and Sub-Assistant Surgeons were members of the Indian Medical Department.

Now that the Campaign has closed, it may not be out of place here for me to record my special obligations to the Director of Medical Services, Pretoria, for complying with my reiterated demands for personnel, occasioned by the great and continuous wastage from sickness; and to tender my thanks to Officers, Nursing Sisters and all Ranks for services loyally rendered at all times, and amidst the conflicting interests of a personnel of so composite a character.

## TABLE II. FINANCIAL RETURN 1918-19.

The estimated expenditure of the Medical Department was as follows :—

Personal Emoluments ... ..	£8,227
Other Charges ... ..	2,587
	<hr/>
	£10,816

The actual expenditure during the year was as follows :—

Personal Emoluments ... ..	£7,206 0 7
Other Charges ... ..	5,145 15 7
	<hr/>
	£12,351 16 2

The principal savings were under the following heads :—

Personal Emoluments, owing to the medical staff being under strength, and the employment of the native sub-staff on military duty; Sleeping Sickness, owing to suspension of Sleeping Sickness investigations; Upkeep of Hospitals, owing to some of these being handed over to and maintained by the Military.

The over-expenditure was incurred chiefly on account of the Influenza Epidemic and for Bubonic Plague, neither of which had been provided for in the estimates; for the purchase of drugs whose cost was considerably enhanced; and under the head of Passages, due to invaliding of members of the staff.

*Revenue.*—This amounted to £366 16s. 1d. and was derived from Hospital fees.

III.—TABLE.

RETURN OF STATISTICS OF THE POPULATION FOR THE YEAR 1918-19.

							Europeans and Whites	Africans.	Asiatics.
No. of Inhabitants, 1918-19	...	...	..	...	...	...	724	1,215,976	407
„ „ Births, „	...	...	...	...	...	...	17	—	—
„ „ Deaths, „	...	...	...	...	...	...	11	—	—
„ „ Inhabitants, 1917-18	...	...	...	...	...	...	715	1,227,442	422
Increase							9	—	—
Decrease							—	11,466	15

II. PUBLIC HEALTH.  
(A.) GENERAL REMARKS.

The activities of the enemy forces having been confined during the greater portion of this year to Portuguese East Africa, the troops composing the Nyasa-Rhodesia Field Force were disposed along the entire eastern portion of Nyasaland and of Lake Nyasa. Whereas, previous to 1918, the Lines of Communication had lain in a direction south to north, this new movement of the enemy necessitated the establishment of lateral communications along the whole eastern extent of the Protectorate and of the eastern shores of the Lake. Zomba now became the General Headquarters of the General Officer Commanding the Force, and the entire medical staff, civil as well as military, became implicated in the military operations.

Up to about the end of July the movements of the enemy were mainly in a southerly direction, towards Quelimane; but in the middle of the following month he moved in a north-westerly direction, and on the 31st of October was reported to be in the vicinity of Fife. A rapid movement was then made by him towards Kasama, in Northern Rhodesia, which was reached shortly before the announcement of the Armistice.

I mention these particulars in order to indicate how great and continuous a movement of troops, followers, and carriers was occasioned throughout this year, affording every facility for the spread of infectious and contagious diseases.

The accession to my staff, however, of the C. 26 British Field Ambulance, the 2nd East Africa Ambulance, and Nos. 1 and 3 Carrier Corps Hospitals, enabled me to detach a Medical Officer for Plague duty in the North Nyasa district; two Medical Officers, and N.C.O's of the South African Medical Corps, for Small-pox duty along the main Lines of Communication; and Venereal Disease hospitals were established at the Bar, Fort Johnston, Zomba and Limbe.

The result of these measures was, as regards Bubonic Plague, that only five cases (two of these returned as "suspected cases"), were reported from the North Nyasa district, as against 28 in the previous, and 13 in the preceding year, when the disease made its first appearance in the neighbourhood of Karonga.

Plague had also been reported by the District Resident on the eastern border of the Mombera district. A Medical Officer was immediately despatched to this area, and after making full investigations on the spot, was able to report that these deaths had not been due to Plague but to a variety of other causes, principally enteritis.



There was no recurrence of Cerebro-spinal meningitis this year, and it may therefore safely be assumed that the outbreak which was reported last year resulted from the introduction of the disease into Nyasaland by native German prisoners of war who were conveyed to Zomba for internment.

Small-pox, as in previous years, was mainly confined to the areas mentioned in last year's report. The very abnormal movements of natives which were occasioned by the military operations rendered the task of controlling these movements extremely difficult. New outbreaks occurred on the Lines of Communication between the Liwonde and Fort Johnston sections, and cases were also reported from Zomba, Blantyre and Limbe; but the military staff at my disposal enabled these outbreaks to be kept under control so that the disease did not reach an epidemic intensity in any of these areas.

Sleeping Sickness investigations, owing to the serious shortage of staff, have remained suspended since October, 1916. At the risk of reiteration it must again be stated that there is a steady annual death-rate from human trypanosomiasis in the fly-infested areas of the Dowa and Marimba districts; and notwithstanding that investigations hitherto conducted have shown that these deaths cannot be considered as abnormally high, having regard to the number of inhabitants in the areas involved, the fact remains that the existence of this disease is a dangerous and ever-present menace to life in the localities mentioned.

It would be taking a very moderate view of the situation if I emphasize the urgent necessity of having at least three additional Medical Officers; one for duty in connection with Plague in the North Nyasa district; and one in the Dowa and Marimba areas, respectively, where Sleeping Sickness is known to be always in evidence. The routine work of a Medical Officer at his station does not admit of his undertaking specific duties of this nature, either efficiently or with continuity. He is, moreover, liable to be transferred to another station without even being relieved. Of the eleven Medical Officers on the staff two, or more frequently three, are normally on leave, leaving eight to deal with the fifteen districts into which the Protectorate is divided, and this in itself is an obvious anomaly.

The establishment during the War of Venereal Disease hospitals at the Bar, Fort Johnston, Zomba and Limbe, wherein patients were detained until such time as they could safely be discharged, resulted in a great service to the community; and the continuance of this work is at present under consideration.

A further boon was conferred on the civil community by the presence of Military Dental Surgeons, and in view of the loss of efficiency and suffering which dental troubles entail, it is unnecessary to advance reasons to support the statement that the lack of a Dental Officer on the medical staff has been, and continues to be gravely felt.

One of the most notable events of the year, and a factor affecting the public health of the Protectorate more prejudicially than any other, was the appearance of Influenza in the month of November. I have already submitted a detailed report on the subject, and this report is now presented here as an Appendix. Demobilization had fortunately only just begun, and I was thus enabled to retain the services of a large number of Officers, Nurses, and N.C.O's and Men of the South African Medical Corps, without whose assistance the problem of coping with the sick would have been impossible.

Before proceeding to deal with the subject of the diseases treated during the year it is necessary to explain that the returns shown in this, as in the previous three reports, refer only to the civil population.

The sick returns relating to the troops have been rendered in the case of Union Troops to the Director of Medical Services, Pretoria; those referable to Rhodesian Troops have been submitted to the Rhodesian military authorities; and those in respect of the King's African Rifles, to the Nyasaland military authorities. In the case of Carriers, who naturally formed a considerable portion of the force, and who were drawn both from Rhodesia and Nyasaland, the sick returns relating to them have been submitted to their respective Governments.

The figures here given refer, therefore, only to the comparatively small balance remaining after all the military cases treated in the various hospitals have been abstracted from the sick returns.

## 1. GENERAL DISEASES.

There is nothing of importance to report under this head,

## 2. COMMUNICABLE DISEASES.

### (1). MOSQUITO OR INSECT-BORNE.

*Malaria*.—There were 307 cases returned, with two deaths, as against 320 cases and three deaths in the previous, and 385 cases in the preceding year.

*Blackwater Fever*.—Only one case was recorded as against two in each of the preceding two years. It was the patient's third attack and terminated fatally. The case was reported from the Lower Shire district, in the month of January.

*Trypanosomiasis*.—There is nothing to report under this head as Sleeping Sickness investigations have been suspended since October, 1916, and can only be renewed when there is a Medical Officer available for this duty.

### (2). INFECTIOUS OR EPIDEMIC.

*Beri-Beri*.—Three cases with two deaths were reported this year; five came under treatment last year, and ten in the year previous.

*Chicken-pox*.—Fifteen cases were returned, as against 12 in the previous, and 29 in the preceding year.

*Dysentery*.—There were 398 cases with 58 deaths notified, compared with 283 cases and 14 deaths in 1917, and 262 cases in 1916.

*Enteric*.—Three cases with one death, as against one in the previous, and three in the preceding year, also with one death.

*Gonorrhœa*.—Thirty-five cases were returned, as against 53 in 1917, and 45 in 1916.

*Influenza*.—There were 459 cases treated, with 34 deaths. The appendix to this report gives the total number treated during the year in the military and civil hospitals, and the attendant mortality.

*Leprosy*.—Six cases were notified with one death, as compared with one case in the previous, and two in the preceding year.

*Measles*.—There were 14 cases reported, as against seven and five in the previous two years.



*Pneumonia*.—Fifty-three cases with 13 deaths, as compared with 63 cases and the same number of deaths in 1917, and 44 cases with eight deaths in 1916.

*Syphilis*.—There were 103 cases with three deaths, as against 171 cases and three deaths last year, and 118 cases in the preceding year.

*Tuberculosis*.—Nine cases were recorded with one death, the figures for the previous two years having been 14 and 13 respectively.

*Whooping Cough*.—Twenty cases, as compared with two last year, and four in 1916.

*Yaws*.—There were 39 cases returned, as against 15 in the previous, and a similar number in the preceding year.

*Pellagra*.—Only two cases were returned from the Civil Prison this year, three being the number reported last year.

*Plague*.—Five cases, two of these returned as suspected cases, were notified from the North Nyasa district, as compared with 29 cases in 1917, and 13 in 1916.

*Cerebro-spinal meningitis*.—No cases were reported this year; 67 cases with 45 deaths occurred last year, the disease having been introduced into Nyasaland by native German prisoners of war, amongst whom the first cases were observed.

## B] EUROPEAN OFFICIALS.

Owing to the longer tours of service the health of European officials was worse this year than in preceding years.

Fifteen were medically boarded and invalided during the year, as compared with 11 in 1917, nine in 1916, ten in 1915, and seven in 1914.

The causes of invaliding were as follows:—

1. Arthritis, and anæmia and general debility following dysentery.
2. Enteric fever.
3. Arthritis, neurasthenia, asthma and polypus of nose.
4. Pulmonary tuberculosis.
5. Anaemia and mal-nutrition.
6. Neurasthenia and glycosuria.
7. Chronic rheumatism, gastro-intestinal trouble and appendicitis.
8. Chronic malaria and dysentery.
9. Chronic gastro-intestinal trouble, dysentery, neurasthenia and general debility.
10. Malarial fever on which an attack of pneumonia supervened.
11. Diabetes mellitus.
12. Epilepsy, anæmia and pyorrhœa.
13. Neurasthenia.
14. Chronic valvular disease.
15. Anæmia and general debility.

There was a total of 172 cases treated, as against 174 cases with one death in the previous year, and 185 cases with three deaths in the preceding year.



Malaria accounted for 11·6 per cent. of the total admissions, as compared with 11·4 per cent. in 1917, and 16·2 per cent. in 1916.

The principal diseases treated were, in order of frequency, malaria, gastrointestinal disorders, influenza, rheumatism and dysentery.

TABLE SHOWING SICK, INVALIDING, AND DEATH RATES FOR EUROPEAN OFFICIALS, PORT HERALD.

	1916	1917	1918
Total number of Officials ... ..	14	13	No record
Average number resident ... ..	7	6	7
Total number on Sick List ... ..	10	11	7
Total number of days on Sick List ... ..	117	290	33
Average daily number on Sick List ... ..	35	79	02
Percentage of Sick to average number resident ... ..	143	183·3	100
Average number of days on Sick List for each Patient ... ..	5·85	26·	4·7
Average Sick time to each resident ... ..	16·7	48·3	—
Total number Invalided ... ..	1	—	Nil
Percentage of Invalidings to total residents ... ..	7·14	—	”
Total Deaths ... ..	Nil	Nil	”
Percentage of Deaths to total residents ... ..	”	”	”
” ” ” ” average number resident ... ..	”	”	”
No. of cases of Sickness contracted away from residence ... ..	”	”	No record.

TABLE SHOWING SICK, INVALIDING, AND DEATH RATES FOR EUROPEAN OFFICIALS, BLANTYRE.

	1916	1917	1918
Total number of Officials ... ..	21	20	22
Average number resident ... ..	15	14	17
Total number on Sick List ... ..	14	11	15
Total number of days on Sick List ... ..	14	326	427
Average daily number on Sick List ... ..	14	0·9	1·2
Percentage of Sick to average number resident ... ..	93	77	88·2
Average number of days on Sick List for each Patient ... ..	7	25	25·1
Average Sick time to each resident ... ..	7	23·3	19·4
Total number Invalided ... ..	2	1	6
Percentage of Invalidings to total residents ... ..	13	5	27·2
Total Deaths ... ..	Nil	Nil	Nil
Percentage of Deaths to total residents ... ..	”	”	”
” ” ” ” average number resident ... ..	”	”	”
No. of cases of Sickness contracted away from residence ... ..	3	0	2

TABLE SHOWING SICK, INVALIDING, AND DEATH RATES FOR EUROPEAN OFFICIALS, ZOMBA.

	1916	1917	1918
Total number of Officials ... ..	67	48	78
Average number resident ... ..	47	45	62
Total number on Sick List ... ..	78	26	54
Total number of days on Sick List ... ..	501	208	689
Average daily number on Sick List ... ..	4·1	57	1·88
Percentage of Sick to average number resident ... ..	165·9	57·8	87·09
Average number of days on Sick List for each Patient ... ..	6·4	8	12·9
Average Sick time to each resident ... ..	7·5	4·6	11·1
Total number Invalided ... ..	5	10	4
Percentage of Invaliding to total residents ... ..	7·4	20·8	9·52
Total Deaths ... ..	Nil	Nil	Nil
Percentage of Deaths to total residents ... ..	”	”	”
” ” ” ” average number resident ... ..	”	”	”
No. of cases of Sickness contracted away from residence ... ..	”	”	”

### C. GENERAL EUROPEAN POPULATION.

There were 281 cases treated during the year, with two deaths, as against 269 cases with one death in the previous year, and 288 cases with three deaths in the year preceding. The causes of death were Blackwater Fever, and gunshot wound of the head, the latter self-inflicted.

In order of frequency, the principal diseases treated were malaria, gastrointestinal disorders, influenza, dysentery and syphilis. Malaria accounted for 17·4 per cent. of the total admissions.

### III. SANITATION.

There is no Sanitary Department in the Protectorate, all sanitary work being attended to by Medical Officers at their respective stations.

#### 1. ADMINISTRATIVE.

(a). The Epidemic and Contagious Diseases Rules, 1915, were applied to the Mombera district, in respect of Bubonic Plague, on the 28th February, 1918.

(b). The above Rules were applied to the Upper Shire district, in respect of Small-pox, on the 15th April, 1918.

(c). The Epidemic and Contagious Diseases Ordinance, 1903, and all the Rules made thereunder, were applied to the whole Protectorate in respect of Spanish Influenza, on the 30th October, 1918.

(a). The Epidemic and Contagious Diseases Rules, 1918, were promulgated on the 30th December, 1918, and applied to the whole Protectorate in respect of Spanish Influenza.

#### 2. PREVENTIVE MEASURES.

*Malaria*.—Mosquito reduction and personal prophylaxis were the measures principally attended to. The segregation of natives in locations was carried out so far as the conditions connected with the presence of large numbers of natives in consequence of the military operations permitted.

*Trypanosomiasis*.—As already stated, all work in connection with this disease has been suspended since October, 1916, owing to shortage of staff; and I have referred to the urgency of its resumption as soon as circumstances enable this to be done.

*Small-pox*.—Appended below is a return of the vaccinations which were performed during the year.

These vaccinations were done with lymph obtained from the Lister Institute and South Africa; but few reactions resulted from the latter source of supply, and the relatively larger proportion of failures recorded, as compared with previous years, is to be ascribed to this cause.

District.	Successful.	Modified.	Failed.	Not seen.	Total.
Port Herald ... ..	6,770	1,818	913	607	10,108
Ruo ... ..	4,894	992	348	153	6,387
Mlanje ... ..	2,392	2,266	1,352	282	6,292
West Shire ... ..	936	1,777	2,077	120	4,910
Blantyre ... ..	10,541	5,331	2,894	467	19,233
Zomba ... ..	3,990	651	621	1,420	6,682
Upper Shire ... ..	3,581	1,320	1,037	234	6,172
South Nyasa ... ..	6,640	2,081	1,735	1,437	11,893
Dedza ... ..	697	444	454	509	2,104
Lilongwe ... ..	4,471	2,399	1,750	927	9,547
Dowa ... ..	823	1,101	1,535	72	3,531
Marimba ... ..	2,588	1,368	1,408	2	5,366
Mzimba ... ..	7,229	1,445	1,056	1,664	11,394
West Nyasa ... ..	3,012	1,923	2,489	1,469	8,893
North Nyasa ... ..	1,199	1,003	1,175	0	3,377
Total	59,763	25,919	20,844	9,363	115,889



*Plague.*—The measures adopted were (a) the application of quarantine; (b) destruction of rats; (c) inoculation of natives in infected areas; (d) burning of infected huts.

### 3. GENERAL MEASURES.

The following reports have been submitted by Medical Officers —

*Port Herald.*—There are public latrines, with zinc buckets, for the use of natives working or residing in the township.

I would emphasize the necessity of having cisterns or tanks to each house to enable the rain water to be used for drinking purposes, the water from the river which is at present used being unfit for household employment.

As far as routine sanitary measures are concerned the usual primitive sanitary methods obtain here as elsewhere, and will, I presume, continue to do so until a sanitary department is organized, with sufficient funds to carry out the necessary measures and to maintain a trained staff of native sanitary inspectors.

Sanitation controlled by Town Councils is not, and never has been, satisfactory in the tropics.

*Limbe.*—In the township very little has been possible; the Town Council, or an influential part of it, adopted an obstructive attitude and held practically no meetings and no election. Time after time the usual monthly meeting was postponed at the last minute, on what seemed slender grounds. Plans for new buildings were handed in and remained for months unacknowledged. It is extremely unfortunate that this should have occurred at a time when Limbe was rapidly growing. Numbers of shanties and rough buildings were erected without sanction, some of these I succeeded in having demolished.

The bye-laws of the Township have been openly disregarded. The Township is in my opinion far too large to be manageable and its size should be reduced.

*Blantyre.*—Owing to shortage of labour and building materials it has not been possible to do much in the way of construction during the year, and some very necessary improvements in the Asiatic quarter are delayed for this reason. A number of latrines in this quarter are most insanitary and nothing short of reconstruction will rectify their condition. In several cases the owners are themselves anxious to have this done, but for the reasons stated it has not been possible.

The old system of dumping refuse outside the Township boundaries has been replaced by incineration, and this has worked satisfactorily. The B. & E. A. Ltd. have allowed the use of their small tobacco refuse incinerator, and this proving inadequate to cope with the amount of refuse collected, permission to use the incinerator erected at the Internment Camp was obtained.

Such a state of affairs arose at the privately owned Slaughter House in the township—culminating in prosecution and conviction of the owner, judgment upheld on appeal by the defendant in the High Court—that the Town Council has taken in hand the erection of a Slaughter House. This case is an illustration of the backwardness of public opinion on sanitary matters in the Protectorate. It was necessary to take legal action in order to establish the point that it was insanitary to bury, a few inches under the ground of the yard in which the Slaughter House is situated in the very centre of the town, all the offal from the Slaughter House; or to dump it in and around the bins which the Town Council provides for household refuse. An intolerable nuisance arose, as may well be imagined, when it is mentioned that owing to the sales to the military as many as ten animals were sometimes slaughtered daily.

With prison labour the Resident did a large amount of clearing of the beds and banks of the Mudi stream, and its tributaries, where mosquitoes were found to be breeding late into the dry season.

In the Asiatic quarter a new well is being sunk by the Town Council, but up to the present without success. A better water-supply for the Township is an urgent necessity.

Blantyre suffers from absentee landlords as do other places; there are many plots of vacant land which are never cleared until a warning Notice is sent, and meanwhile they serve as latrines for passing natives.

*Zomba.*—The sanitation of the Military area, known as the Camp, was attended to by a qualified European Sanitary Inspector, of the South African Medical Corps, who had at his disposal a gang of thirty natives for sanitary duties.

There is an incinerator in use at the Camp, and works most satisfactorily.

In the civil portion of the township the method of disposal of night soil is by burial, all house refuse being deposited in pits and there burnt.

There are eight public latrines in Zomba, for males and females, with a total of 36 pans, and these latrines are attended to by a staff of scavengers under the supervision of a native sanitary inspector.

*Fort Johnston.*—All the sanitary arrangements in this township, as well as at the Bar, were in the hands of the military authorities, and there was a European Sanitary Inspector of the South African Medical Corps, with a staff of natives, detailed for duty in each of these areas.

The pail system is in adoption in the case of Europeans and Asiatics, and night soil is daily removed and buried. All household refuse is deposited in pits and there burnt.

Native latrines on the trench system are provided, for males and females, on the outskirts of the township.

Owing to the fall in the Lake there is no current in the river on the banks of which the township is situated. This stagnation of the water renders it unfit for domestic purposes, encourages the growth of weeds along its banks, and affords extensive breeding grounds for mosquitoes; it is therefore necessary to clear these banks of weeds every year.

There are four wells in the township, but of these only two can be depended on for a continuous supply.



TABLE IV.

SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR  
IN THE TOWN.

## 1. NAME OF TOWN—PORT HERALD.

	Approximate area.	Number of proclaimed open spaces.
1916	200 acres	Nil
1917	200 "	"
1918	200 "	"

## 2. POPULATION.

	Number of Natives.		Number of Europeans.		Total.
	Males.	Females.	Males.	Females.	
1916 ... ..	109	22	13	6	144
1917 ... ..	243	46	12	3	304
1918 ... ..	33	12	7	1	53

## 3. HOUSING.

	Number occupied by Europeans.	Number occupied by Natives.
Number of Houses:—		
1916 ... ..	11	—
1917 ... ..	10	92 (brick).
1918 ... ..	7	17
Number of Huts:—		
1916 ... ..	—	85
1917 ... ..	—	9
1918 ... ..	Nil	Nil

## 4. MOSQUITO PROTECTION OF HOUSES.

	1916	1917	1918
Number of European houses wholly mosquito-protected ...	3	3	3
Number of European houses with mosquito room ... ..	6	6	6
Number rendered during the year wholly mosquito-protected	—	—	—
Number rendered during the year partially mosquito-protected ... ..	—	—	—



5. ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1916	1917	1918
Number of public buildings erected with sanction as to site, construction, and relation to other buildings ... ..	—	—	—
Number of houses erected with sanction as to site, construction, and relation to other buildings ... ..	—	2	—
Number of huts erected with sanction as to site, construction, and relation to other buildings ... ..	—	5	—
Number of houses built without sanction ... ..	—	—	—
Number of huts built without sanction ... ..	—	—	—

ACTION TAKEN.

	Number of Prosecutions		Number demolished.	
	Huts.	Houses.	Huts.	Houses.
1916 ... ..	Nil	Nil	Nil	Nil
1917 ... ..	”	”	5	2
1918 ... ..	”	”	Nil	Nil

6. MARKETS.

	Total number.	Number paved and drained.	Number unpaved.
1916 ... ..	Nil	Nil	Nil
1917 ... ..	”	”	”
1918 ... ..	1	under construction.	”

7. SLAUGHTER-HOUSES.

	Total number.	Number paved and drained.	Number unpaved.
1916 ... ..	Nil	Nil	Nil
1917 ... ..	”	”	”
1918 ... ..	”	”	”

## 8. LATRINES.

	For Males.		For Females.	
	Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines :—				
1916 ... ..	3	6	—	—
1917 ... ..	5	5	1	1
1918 ... ..	3	3	—	—
Number of new Public Latrines erected during the year :—				
1916 ... ..	1	2	—	—
1917 ... ..	—	—	—	—
1918 ... ..	1	—	—	—
Number of Public Latrines repaired during the year :—				
1916 ... ..	—	—	—	—
1917 ... ..	—	—	—	—
1918 ... ..	—	—	—	—
Number of Public Latrines demolished during the year :—				
1916 ... ..	—	—	—	—
1917 ... ..	—	—	—	—
1918 ... ..	—	—	—	—

	1916	1917	1918
Number of Private Latrines ... ..	12	27	26
Average number of pails of nightsoil removed daily ..	12	27	29
Average number of soiled pails removed and clean pails substituted ... ..	12	27	—
Number of nightsoil men employed to clean latrines and remove excreta ... ..	2	4	2*
Number of cesspools ... ..	—	—	—
Number of cesspools cleansed ... ..	—	—	—
Number of new cesspools constructed during the year ...	—	—	—
Number of old cesspools abolished ... ..	—	—	—
Number of cesspools oiled regularly by Department ...	—	—	—

\* Employed by Town Council.

## 9. REMOVAL OF REFUSE.

	1916	1917	1918
Number of dustbins ... ..	24	20	25
Number of carts at work daily to remove refuse from streets	—	—	—
Amount of refuse removed daily ... ..	—	—	—
Number of carts at work daily to remove refuse from yards and premises ... ..	—	—	—
Amount of refuse removed daily from yards and premises ...	—	—	15*
Number of men employed for moving refuse ... ..	2	2	2

\* Drums (8 gall).

## 10. MODE OF DISPOSAL OF EXCRETA, REFUSE, AND OFFAL.

	Daily average number of pails of excreta.			Daily average number of cartloads of refuse.			Daily average number of cartloads of Slaughter House and Market Offal.		
	1916	1917	1918	1916	1917	1918	1916	1917	1918
Buried or trenched ...	12	23	29	—	—	15	—	—	—
Burnt ...	—	—	—	—	—	—	—	—	—
Thrown into sea ...	—	—	—	—	—	—	—	—	—
Otherwise dealt with ...	—	—	—	—	—	—	—	—	—

State mode of disposal.

## 11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS, AND COMPOUNDS.

1916	1917	1918
No record.		

## 12. WATER SUPPLY.

Nature of Water Supply.	1916	1917	1918
Pipe-borne water :—			
Source (river, lake, or spring) :—	Water supply is direct from the adjacent Shire river.		
Number of linear yards ...	—	—	—
Number of stand-pipes along roads ...	—	—	—
Number of stand-pipes in compounds and houses ...	—	—	—
Wells :—			
Public :—			
Number ...	Nil	Nil	Nil
Number with pumps protected against surface water and mosquito-protected ...	”	”	”
Private :—			
Number ...	3	3	3
Number protected against surface water and mosquito-protected ...	Nil	Nil	Nil
Tanks :—			
Public :—			
Number underground ..	”	”	”
Number mosquito-protected and served by pumps ...	”	”	”
Number above ground ...	”	”	1
Number mosquito-protected ...	”	”	1
Number of 400 gallons capacity or less ...	”	”	Nil
Number above 400 gallons ...	”	”	”
Private :—			
Number underground ...	—	—	—
Number mosquito-protected ...	—	—	—
Number above ground ...	1	3	3
Number mosquito-protected ...	1	1	1
Number of 400 gallons capacity or less ...	—	2	2
Number above 400 gallons ...	1	1	1

Nature of Water Supply.	1916	1917	1918
Nature of tanks :—			
Wood ... ..	—	—	—
Iron ... ..	1	3	3
Concrete ... ..	—	—	—
Barrels :—			
Number ... ..	1	1	1
Number mosquito-protected ... ..	—	—	—

## 13. DRAINAGE.

Nature of Drainage.	Public.	Private.
Masonry drains :—		
Linear yards of masonry drains :—		
1916 ... ..	—	—
1917 ... ..	783	—
1918 ... ..	783	—
Linear yards reconstructed during the year :—		
1916 ... ..	—	—
1917 ... ..	40	—
1918 ... ..	40	—
Linear yards repaired during the year :—		
1916 ... ..	—	—
1917 ... ..	150	—
1918 ... ..	150	—
Linear yards of new drains constructed during the year :—		
1916 ... ..	—	—
1917 ... ..	—	—
1918 ... ..	—	—
Earth drains or ditches :—		
Number of linear yards of ditches cleaned :—		
1916 ... ..	400	—
1917 ... ..	2,920	—
1918 ... ..	2,920	—
Number of linear yards of ditches dug and graded :—		
1916 ... ..	100	—
1917 ... ..	75	—
1918 ... ..	75	—
Average frequency of clearing ditches of grass :—		
1916 ... ..	2	—
1917 ... ..	8	—
1918 ... ..	8	—

## 14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

	1916	1917	1918
Number of square yards of weeds, grass, and vegetation cut and removed ... ..	As	required.	
Average frequency of clearance of rank vegetation on same area ... ..	2	2	2



## 15. EXCAVATIONS AND LOW-LYING LAND.

	1916	1917	1918
Number of pools and excavations ... ..	—	41	41
Number of excavations filled up ... ..	Nil	5	—
Amount of low-lying and marsh land raised and drained ...	—	—	—
Number of pools, marshes, streams, &c., fish-stocked ...	—	—	—
Number of cubic yards of material used for filling up pools and excavations ... ..	—	—	—
Number of persons fined for making new excavations ...	—	—	—
Average number of men daily employed in filling up pools &c. ... ..	—	—	—

## 16. OILING.

	1916	1917	1918
Number of drains oiled ... ..	Nil	Nil	Nil
Number of pools and excavations oiled ... ..	„	„	„
Number of tanks and barrels oiled ... ..	„	„	„
Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ..	„	„	„

## 17. INSPECTIONS AND PROSECUTIONS.

	1916	1917	1918
Number of inspectors employed ... ..	—	—	—
Number of houses inspected ... ..	—	—	—
Number of houses where larvæ were found ... ..	—	—	—
Number of notices served to remove conditions causing the breeding of larvæ ... ..	—	—	—
Number of persons fined for having mosquito larvæ on premises ... ..	—	—	—
Number of notices served to remove insanitary conditions on premises ... ..	—	4	—
Number of persons fined for not removing insanitary conditions after notice ... ..	—	1	—
Number of soda and aerated water factories inspected ...	—	—	—



TABLE IV.  
SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR  
IN THE TOWN.

1. NAME OF TOWN—BLANTYRE.

	Approximate area.	Number of proclaimed open spaces.
1916 ... ..	1,684 s. yds.	1
1917 ... ..	1,000 „	2
1918 ... ..	1 sq. mile	2

2. POPULATION.

	Number of Asiatics.		Number of Natives.		Number of Europeans.		Total.
	Male.	Female.	Males.	Females.	Males.	Females.	
1916	—	—	60	60	48	21	189
1917	—	—	140	70	29	14	253
1918	33	4	320	145	33	14	554

3. HOUSING.

	Number occupied by Europeans.	Number occupied by Natives.
Number of Houses :—		
1916 ... ..	57	—
1917 ... ..	23	—
1918 ... ..	24	—
Number of Huts :—		
1916 ... ..	—	300
1917 ... ..	—	300
1918 ... ..	—	260

4. MOSQUITO PROTECTION OF HOUSES.

	1916	1917	1918
Number of European houses wholly mosquito-protected ...	—	—	—
Number of European houses with mosquito room ... ..	1	1	1
Number rendered during the year wholly mosquito-protected	—	—	—
Number rendered during the year partially mosquito-protected ... ..	1	—	—

## 5. ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1916	1917	1918
Number of public buildings erected with sanction as to site, construction, and relation to other buildings	—	—	4
Number of houses erected with sanction as to site, construction, and relation to other buildings	—	1	—
Number of huts erected with sanction as to site, construction, and relation to other buildings ... ..	—	1	—
Number of houses built without sanction ... ..	2	—	—
Number of huts built without sanction ... ..	—	10	3

## ACTION TAKEN.

	Number of Prosecutions		Number demolished.	
	Huts.	Houses.	Huts.	Houses.
1916 ... ..	Nil	Nil	Nil	Nil
1917 ... ..	”	”	”	”
1918 ... ..	”	”	25	”

## 6. MARKETS.

	Total number.	Number paved and drained.	Number unpaved.
1916 ... ..	1	Nil	1
1917 ... ..	1	”	1
1918 ... ..	1	”	1

## 7. SLAUGHTER-HOUSES.

	Total number.	Number paved and drained.	Number unpaved.
1916 .. ...	1	Nil	1
1917 ... ..	2	1	1 (unused).
1918 ... ..	1	1	Nil

## 8. LATRINES.

	For Males.		For Females.	
	Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines :—				
1916	4	—	4	—
1917	3	5	2	4
1918	3	5	2	4
Number of new Public Latrines erected during the year :—				
1916	Nil	Nil	Nil	Nil
1917	1	2	"	"
1918	Nil	Nil	"	"
Number of Public Latrines repaired during the year :—				
1916	2	—	2	—
1917	3	—	2	—
1918	Nil	—	Nil	—
Number of Public Latrines demolished during the year :—				
1916	Nil	Nil	Nil	Nil
1917	"	"	"	"
1918	"	"	"	"

	1916	1917	1918
Number of Private Latrines	67	56	56
Average number of pails of nightsoil removed daily	67	56	56
Average number of soiled pails removed and clean pails substituted	67	56	56
Number of nightsoil men employed to clean latrines and remove excreta	—	12	12
Number of cesspools	—	—	—
Number of cesspools cleansed	—	—	—
Number of new cesspools constructed during the year	—	—	—
Number of old cesspools abolished	—	—	—
Number of cesspools oiled regularly by Department	—	—	—

## 9. REMOVAL OF REFUSE.

	1916	1917	1918
Number of dustbins	6	10	10 (Public.)
Number of carts at work daily to remove refuse from streets	1	1	1
Amount of refuse removed daily	—	3	4 Cart loads
Number of carts at work daily to remove refuse from yards and premises	Nil	Nil	Nil
Amount of refuse removed daily from yards and premises	Unknown.		
Number of men employed for moving refuse	8	8	8

10. MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL.

	Daily average number of pails of excreta.			Daily average number of cartloads of refuse			Daily average number of cartloads of Slaughter House and Market Offal.		
	1916	1917	1918	1916	1917	1918	1916	1917	1918
Buried or trenched	67	67	65	2	—	—	Nil	Market refuse deposited in	
Burnt	—	—	—	—	3	4	"	Public bins :	
Thrown into sea	—	—	—	—	—	—	"	slaughter house	
Otherwise dealt with	—	—	—	—	—	—	"	offal removed by owners.	

State mode of disposal.

11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY, AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS AND COMPOUNDS.

1916	1917	1918
Included in No. 10.		

12. WATER SUPPLY.

Nature of Water Supply.	1916	1917	1918
Pipe-borne water :—			
Source (river, lake, or spring) :—			
Number of linear yards ... ..	—	—	—
Number of stand-pipes along roads ... ..	—	—	—
Number of stand-pipes in compounds and houses ...	—	—	—
Wells :—			
Public :—			
Number ... ..	2	2	2
Number with pumps protected against surface water and mosquito-protected ... ..	—	2	2
Private :—			
Number ... ..	4	4	4
Number protected against surface water and mosquito-protected ... ..	All protected, one with pump.		
Tanks :—			
Public :—			
Number underground ... ..	—	—	—
Number mosquito-protected and served by pumps ...	—	—	—
Number above ground ... ..	—	—	—
Number mosquito-protected ... ..	—	—	—
Number of 400 gallons capacity or less ... ..	—	—	—
Number above 400 gallons ... ..	—	—	—
Private :—			
Number underground ... ..	18	—	—
Number mosquito-protected ... ..	5	—	—
Number above ground ... ..	—	18	18
Number mosquito-protected ... ..	—	5	5
Number of 400 gallons capacity or less ... ..	16	—	—
Number above 400 gallons ... ..	20	18	18



Nature of Water Supply.	1916	1917	1918
Nature of tanks :—			
Wood ... ..	—	—	—
Iron ... ..	20	18	18
Concrete ... ..	—	—	—
Barrels :—			
Number ... ..	—	—	—
Number mosquito-protected ... ..	—	—	—

13. DRAINAGE.

Nature of Drainage.	Public.	Private.
Masonry drains :—		
Linear yards of masonry drains :—		
1916 ... ..	200	
1917 ... ..	3000	Unknown.
1918 ... ..	3000	
Linear yards reconstructed during the year :—		
1916 ... ..	250	
1917 ... ..	—	
1918 ... ..	—	
Linear yards repaired during the year :—		
1916 ... ..	—	
1917 ... ..	—	
1918 ... ..	—	
Linear yards of new drains constructed during the year :—		
1916 ... ..	250	
1917 ... ..	2000	
1918 ... ..	—	
Earth drains or ditches :—		
Number of linear yards of ditches cleaned :—		
1916 .. ...	—	
1917 ... ..	All road side ditches.	
1918 ... ..	—	
Number of linear yards of ditches dug and graded :—		
1916* ... ..	—	
1917 ... ..	Cleaned periodically.	
1918 ... ..	—	
Average frequency of clearing ditches of grass :—		
1916 ... ..	—	
1917 ... ..	—	
1918 ... ..	—	

14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

	1916	1917	1918
Number of square yards of weeds, grass, and vegetation cut and removed ... ..	No	record.	
Average frequency of clearance of rank vegetation on same area ... ..	Periodically	3 times	a year.



## 15. EXCAVATIONS AND LOW-LYING LAND.

	1916	1917	1918
Number of pools and excavations ... ..	All pools reported by Sanitary Inspector are drained or filled in at once by occupier of land.	Some large excavations near market filled by Town Council.	Some large excavations near market filled by Town Council.
Number of excavations filled up ... ..			
Amount of low-lying and marsh land raised and drained ... ..			
Number of pools, marshes, streams, &c., fish-stocked ... ..			
Number of cubic yards of material used for filling up pools and excavations ... ..	—	—	—
Number of persons fined for making new excavations ... ..	—	—	Nil
Average number of men daily employed in filling up pools &c. ... ..	—	—	—

## 16. OILING.

	1916	1917	1918
Number of drains oiled ... ..	—	—	—
Number of pools and excavations oiled ... ..	—	—	—
Number of tanks and barrels oiled ... ..	—	—	—
Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ..	—	—	—

## 17 INSPECTIONS AND PROSECUTIONS.

	1916	1917	1918
Number of inspectors employed ... ..	One native Inspector.		
Number of houses inspected ... ..	All regularly No record.		
Number of houses where larvæ were found ... ..	4	1	5
Number of notices served to remove conditions causing the breeding of larvæ ... ..	4	1	5
Number of persons fined for having mosquito larvæ on premises ... ..	—	—	—
Number of notices served to remove insanitary conditions on premises ... ..	80	56	65
Number of persons fined for not removing insanitary conditions after notice ... ..	—	1	8
Number of soda and aerated water factories inspected ... ..	2	1	1

TABLE IV.

SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR  
IN THE TOWN.

## 1. NAME OF TOWN—ZOMBA.

	Approximate area.	Number of proclaimed open spaces.
1916	668 acres	Unknown.
1917	668 "	"
1918	668 "	"

## 2. POPULATION.

	Number of Natives.		Number of Europeans.		Total.
	Males.	Females.	Males.	Females.	
1916 ... ..	327	120	71	30	548
1917 ... ..	320	115	56	24	515
1918 ... ..	320	115	56	24	515

## 3. HOUSING.

	Number occupied by Europeans.	Number occupied by Natives.
Number of Houses:—		
1916 ... ..	63	53
1917 ... ..	70	60
1918 ... ..	70	60
Number of Huts:—		
1916 ... .. Except military		18
1917 ... .. "		18
1918 ... .. "		18

## 4. MOSQUITO PROTECTION OF HOUSES.

	1916	1917	1918
Number of European houses wholly mosquito-protected ...	Nil	Nil	Nil
Number of European houses with mosquito room ... ..	"	"	"
Number rendered during the year wholly mosquito-protected	"	"	"
Number rendered during the year partially mosquito-protected ... ..	"	"	"

5. ERECTION OF NEW BUILDINGS DURING THE YEAR.

	1916	1917	1918
Number of public buildings erected with sanction as to site, construction, and relation to other buildings ... ..	Nil	Nil	—
Number of houses erected with sanction as to site, construction, and relation to other buildings ... ..	3	„	—
Number of huts erected with sanction as to site, construction, and relation to other buildings ... ..	Nil	Unknown.	
Number of houses built without sanction ... ..	„	„	„
Number of huts built without sanction ... ..	„	„	„

ACTION TAKEN.

	Number of Prosecutions		Number demolished.	
	Huts.	Houses.	Huts.	Houses.
1916 ... ..	Nil	Nil	Nil	Nil
1917 ... ..	„	„	„	„
1918 ... ..	„	„	„	„

6. MARKETS.

	Total number.	Number paved and drained.	Number unpaved.
1916 ... ..	1	Nil	1
1917 ... ..	1	„	1
1918 ... ..	1	„	1

7. SLAUGHTER-HOUSES.

	Total number.	Number paved and drained.	Number unpaved.
1916 ... ..	Nil	Unknown.	Nil
1917 ... ..	1	„	1
1918 ... ..	1	„	1



8. LATRINES.

	For Males.		For Females.	
	Number.	Number of seats.	Number.	Number of seats.
Number of Public Latrines :—				
1916	5	26	3	15
1917	5	26	3	15
1918	5	26	3	15
Number of new Public Latrines erected during the year :—				
1916	Nil	Nil	Nil	Nil
1917	"	"	"	"
1918	"	"	"	"
Number of Public Latrines repaired during the year :—				
1916	2	10	1	5
1917	Nil	Nil	Nil	Nil
1918	"	"	"	"
Number of Public Latrines demolished during the year :—				
1916	Nil	Nil	Nil	Nil
1917	"	"	"	"
1918	"	"	"	"

	1916	1917	1918
Number of Private Latrines	63	64	64
Average number of pails of nightsoil removed daily	63	64	64
Average number of soiled pails removed and clean pails substituted	63	64	64
Number of nightsoil men employed to clean latrines and remove excreta	Unknown.	Unknown.	
Number of cesspools	Nil	Nil	Nil
Number of cesspools cleansed	"	"	"
Number of new cesspools constructed during the year	"	"	"
Number of old cesspools abolished	"	"	"
Number of cesspools oiled regularly by Department	"	"	"

9. REMOVAL OF REFUSE.

	1916	1917	1918
Number of dustbins	30	30	30
Number of carts at work daily to remove refuse from streets	Nil	Nil	Nil
Amount of refuse removed daily	Unknown.	Unknown.	
Number of carts at work daily to remove refuse from yards and premises	Nil	Nil	Nil
Amount of refuse removed daily from yards and premises	No record.		
Number of men employed for moving refuse		"	

10. MODE OF DISPOSAL OF EXCRETA, REFUSE, AND OFFAL.

	Daily average number of pails of excreta.			Daily average number of cartloads of refuse.			Daily average number of cartloads of Slaughter House and Market Offal.		
	1916	1917	1918	1916	1917	1918	1916	1917	1918
Buried or trenched ...	61	63	63	U n k n o w n.			U n k n o w n.		
Burnt ...	2	Nil	Nil	"			"		
Thrown into sea ...	Nil	"	"	"			"		
Otherwise dealt with ...	"	"	"	"			"		

State mode of disposal.

11. AVERAGE DAILY NUMBER OF CARTLOADS OF TIN CANS, BOTTLES, BROKEN CROCKERY AND OTHER INCOMBUSTIBLE MATERIAL REMOVED FROM HOUSES, HUTS, AND COMPOUNDS.

1916	1917	1918
No record.	No record.	No record.

12. WATER SUPPLY.

Nature of Water Supply.	1916	1917	1918
Pipe-borne water :—			
Source (river, lake, or spring) :—	River.	River.	River.
Number of linear yards ...	Nil	Nil	Nil
Number of stand-pipes along roads ...	"	"	"
Number of stand-pipes in compounds and houses ...	"	"	"
Wells :—			
Public :—			
Number ...	Nil	Nil	Nil
Number with pumps protected against surface water and mosquito-protected ...	"	"	"
Private :—			
Number ...	Nil	Nil	Nil
Number protected against surface water and mosquito-protected ...	"	"	"
Tanks :—			
Public :—			
Number underground ..	Nil	Nil	Nil
Number mosquito-protected and served by pumps ...	"	"	"
Number above ground ...	"	"	"
Number mosquito-protected ...	"	"	"
Number of 400 gallons capacity or less ...	"	"	"
Number above 400 gallons ...	"	"	"
Private :—			
Number underground ...	Nil	Nil	Nil
Number mosquito-protected ...	"	"	"
Number above ground ...	"	"	"
Number mosquito-protected ...	"	"	"
Number of 400 gallons capacity or less ...	"	"	"
Number above 400 gallons ...	"	"	"

Nature of Water Supply.								1916	1917	1918
Nature of tanks :—										
Wood ... ..								—	—	—
Iron ... ..								1	1	1
Concrete ... ..								—	—	—
Barrels :—										
Number ... ..								—	—	—
Number mosquito-protected ... ..								—	—	—

13. DRAINAGE.

Nature of Drainage.								Public.	Private.
Masonry drains :—									
Linear yards of masonry drains :—									
1916 ... ..								1704	Nil
1917 ... ..								Nil	”
1918 ... ..								”	”
Linear yards reconstructed during the year :—									
1916 ... ..								”	
1917 ... ..								”	”
1918 ... ..								”	”
Linear yards repaired during the year :—									
1916 ... ..								”	”
1917 ... ..								”	”
1918 ... ..								”	”
Linear yards of new drains constructed during the year :—									
1916 ... ..								440	”
1917 ... ..								Nil	”
1918 ... ..								”	”
Earth drains or ditches :—									
Number of linear yards of ditches cleaned :—									
1916 ... ..								Unknown.	Unknown.
1917 ... ..								”	”
1918 ... ..								”	”
Number of linear yards of ditches dug and graded :—									
1916 ... ..								”	”
1917 ... ..								”	”
1918 ... ..								”	”
Average frequency of clearing ditches of grass :—									
1916 ... ..								Periodically.	
1917 ... ..								”	
1918 ... ..								”	

14. CLEARANCE OF UNDERGROWTH, LONG GRASS AND JUNGLE.

								1916	1917	1918
Number of square yards of weeds, grass, and vegetation cut and removed ... ..								Unknown.		
Average frequency of clearance of rank vegetation on same area ... ..								About once a year.		



## 15. EXCAVATIONS AND LOW-LYING LAND.

	1916	1917	1918
Number of pools and excavations ... ..	2	8	8
Number of excavations filled up ... ..	2	8	8
Amount of low-lying and marsh land raised and drained ...	2 acres.		
Number of pools, marshes, streams, &c., fish-stocked ...	Nil	Nil	Nil
Number of cubic yards of material used for filling up pools and excavations ... ..	"	"	"
Number of persons fined for making new excavations ...	"	"	"
Average number of men daily employed in filling up pools &c. ... ..	"	"	"

## 16. OILING.

	1916	1917	1918
Number of drains oiled ... ..	Nil	Nil	Nil
Number of pools and excavations oiled ... ..	"	"	"
Number of tanks and barrels oiled ... ..	"	"	"
Average number of men daily employed for oiling drains, pools, and watertanks or barrels ... ..	"	"	"

## 17. INSPECTIONS AND PROSECUTIONS.

	1916	1917	1918
Number of inspectors employed ... ..	1	1	1
Number of houses inspected ... ..	60 & Ind.	67	67
Number of houses where larvae were found ... ..	Rain G.	Rain G.	Rain G.
Number of notices served to remove conditions causing the breeding of larvae ... ..	7	8	8
Number of persons fined for having mosquito larvae on premises ... ..	2	None	None
Number of notices served to remove insanitary conditions on premises ... ..	49	46	46
Number of persons fined for not removing insanitary conditions after notice ... ..	6	Nil	N
Number of soda and aerated water factories inspected ...	1	"	"

## SECTION V.

## HOSPITAL AND DISPENSARIES.

Owing to the extreme shortage of staff it was not possible to keep open more than three civil stations, namely, Port Herald, Blantyre and Zomba. Fort Johnston was entirely in charge of the military. The stations at Mlanje, Kota Kota, Chinteché and Karonga had to be closed. At Karonga, however, there was a Medical Officer on Plague duty during the greater part of the year.

When the medical staff attains its normal strength it will be possible to maintain eight stations at the following centres:—(1), Port Herald. (2), Blantyre. (3), Zomba. (4), Fort Johnston. (5), Dedza. (6), Kota Kota. (7), Chinteché or Mzimba. (8), Karonga. The distribution of Medical Officers as here shown will enable medical work to be attended to with some approach to completeness, but seven districts would still remain without any resident Medical Officers.

TABLE VI.

RETURN OF DISEASES (IN-PATIENTS) FOR THE YEAR 1918.

Diseases.					*In Hospital at end of 1917.	Yearly Total.		† Total Cases Treated.	‡ In Hospital at end of 1918.
						Admis- sions.	Deaths.		
INFECTIVE DISEASES.									
Beri-Beri	...	...	...	...	—	3	2	3	—
Chicken-pox	..	..	...	...	—	8	—	8	—
Dysentery	...	...	...	...	18	156	61	174	3
Enteric.	...	...	...	...	1	5	1	6	—
Gonorrhœa	...	...	...	...	—	9	—	9	2
Influenza	...	...	...	...	—	249	33	249	26
Leprosy (a) Nodular	...	...	...	...	—	1	1	1	—
Malaria (a) Aestivo-autumnal	...	...	...	...	5	89	2	94	—
(b) Chronic Malaria	...	...	...	...	1	—	—	1	—
(c) Black-water	...	..	...	...	—	1	—	1	—
Measles	...	...	...	...	—	13	—	13	—
Pneumonia	...	...	...	...	—	44	14	44	—
Relapsing Fever	...	...	...	...	—	1	—	1	—
Mumps	...	...	...	...	—	2	—	2	—
Syphilis (a) Primary	...	...	...	..	—	4	—	4	—
(b) Secondary	...	...	...	...	1	42	3	43	4
Tuberculosis	...	...	...	...	—	4	2	4	1
Yaws	...	...	...	...	—	4	—	4	—
Pyrexia	...	...	...	...	—	29	—	29	—
INTOXICATIONS.									
Pellagra	...	...	...	...	—	1	—	1	—
GENERAL DISEASES									
Anæmia—Pernicious	...	...	...	...	—	10	—	10	2
Rheumatism	...	...	...	...	2	22	—	24	—
Inanition	...	...	...	...	—	1	—	1	—
Total					28	698	119	726	38

The form shows in the main the arrangement of disease in the nomenclature of the Koyal College of Physicians, 1906 Edition. To save space, the unimportant diseases of any class can be grouped in their places as "Other Diseases" of the class.

\* i.e., the year previous to that for which the Return is made.

† "Total cases treated" will, of course, include those remaining in Hospital at the end of the previous year.

‡ The figures in this column to be carried on to the next year's Return.

TABLE VI.—IN-PATIENTS—*Continued.*

## RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1918.

Diseases.	In Hospital at end of 1917.	Yearly Total.		Total Cases Treated.	In Hospital at end of 1918.
		Admis- sions.	Deaths.		
<i>Brought forward</i>	28	698	119	726	38
LOCAL DISEASES.					
Nervous System:—Neuritis ...	—	1	—	1	—
Epilepsy ...	—	2	—	2	—
Neuralgia ...	—	24	—	24	1
Hysteria ...	—	1	—	1	—
Neurasthenia ...	—	1	—	1	—
Dementia ...	—	1	—	1	—
Delusional Insanity ...	—	2	—	2	—
Diseases of the Eye—Conjunctivitis ...	—	6	—	6	—
Ulceration of Cornea ...	—	1	—	1	—
Diseases of the Ear— ...	—	1	—	1	1
Diseases of the Nose— ...	—	1	—	1	—
Diseases of the Circulatory System— ...	—	—	—	—	—
Dilated heart ...	—	3	—	3	—
Valvular Mitral ...	—	1	—	1	—
Diseases of the Respiratory system— ...	—	—	—	—	—
Bronchitis ...	—	52	—	52	3
Asthma ...	—	1	—	1	—
Pleurisy ...	1	15	—	16	—
Diseases of the Digestive system— ...	—	—	—	—	—
Defective Dentition ...	—	1	—	1	—
Caries of teeth ...	—	1	—	1	—
Inflammation of Tonsils ...	—	3	—	3	—
Gastritis ...	1	3	—	4	—
Hæmatemesis ...	—	1	—	1	—
Dyspepsia ...	—	4	—	4	—
Appendicitis ...	—	5	1	5	—
Colitis ...	—	1	—	1	—
Hernia ...	—	2	—	2	—
Diarrhœa ...	1	63	4	64	4
Constipation ...	—	1	—	1	—
Hæmorrhoids ...	—	3	—	3	—
Hepatitis—Acute ...	—	3	—	3	—
Jaundice ...	—	2	—	2	1
Prolapsus ani ...	—	1	—	1	—
Fistula in ano ...	—	1	—	1	—
Chronic intestinal obstruction ...	—	2	—	2	—
Mal-nutrition ...	—	2	—	2	—
Diseases of the Lymphatic System— ...	—	—	—	—	—
Inflammation of Lymphatic Gland ...	—	3	—	3	—
Elephantiasis ...	—	2	1	2	—
Diseases of the Urinary System— ...	—	—	—	—	—
Cystitis ...	—	1	—	1	—
Diseases of the Generative System— ...	—	—	—	—	—
Male Organs— ...	—	—	—	—	—
Urethritis ...	—	1	—	1	—
Hydrocele ...	—	3	—	3	—
Varicocele ...	—	1	—	1	—
Balanitis ...	—	1	—	1	—
<i>Carried forward</i>	31	922	125	953	48



TABLE VI.—IN-PATIENTS.—Continued.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1918.

Diseases.	In Hospital at end of 1917.	Yearly Total.		Total Cases Treated.	In Hospital at end of 1918.
		Admis- sions.	Deaths.		
<i>Brought forward</i>	31	922	125	953	48
LOCAL DISEASES.					
Female Organs—					
Displacement of Uterus ...	—	1	—	1	—
Cervicitis ...	—	1	—	1	—
Delayed Labour ...	—	4	1	4	—
Prolapsus uteri ...	—	1	—	1	—
Tubal gestation ...	—	1	—	1	—
Hyperemesis gravidarum ...	1	—	—	1	—
Diseases of the Organs of Locomotion—					
Osteitis ...	—	1	—	1	—
Arthritis ...	1	2	—	3	—
Synovitis ...	—	2	—	2	—
Diseases of Connective Tissue—					
Cellulitis ...	—	2	—	2	—
Abscess ...	1	16	—	17	—
Diseases of the skin—					
Urticaria ...	1	—	—	1	—
Eczema ...	—	1	—	1	—
Boil ...	—	6	—	6	—
Scabies ...	—	14	—	14	—
Ulcer ...	2	67	—	69	2
Injuries—General ...	—	12	3	12	—
Wounds ...	—	30	—	30	—
Burns ...	—	5	2	5	—
Local ...	6	66	5	72	2
Surgical Operations ...	—	11	1	11	—
Confinements ...	—	2	—	2	—
Tumours ...	—	1	—	1	—
Snake bite ...	—	1	—	1	—
Parasites—Animal					
Bilharzia Rectal ...	—	3	—	3	—
Trematoda (Flukes) ...	—	3	1	3	—
Amaebiasis ...	—	1	—	1	—
Nematoda—					
Ascaris ...	—	1	—	1	—
Ankylostomiasis ...	1	15	7	16	—
Insecta—					
Undiagnosed ...	—	5	1	5	—
Total	44	1,197	146	1,241	52

TABLE VII.

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1918.

Diseases.	Male.	Female.
INFECTIVE DISEASES.		
Chicken-pox ...	4	—
Dysentery ...	192	27
Enteric ...	1	1
Erysipelas ...	2	—
Gonorrhœa ...	8	7
<i>Carried forward</i>	207	35

TABLE VII.—OUT-PATIENTS.—*Continued.*

## RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1918.

Diseases.					Male.	Female.
<i>Brought forward</i>					207	35
INFECTIVE DISEASES.						
Influenza	...	...	...	...	182	6
Leprosy (a) Nodular	...	...	...	...	2	—
Malaria (a) Tertian	...	...	...	...	6	1
(b) Aestivo-autumnal	...	...	...	...	73	13
Measles	..	...	...	...	1	—
Pneumonia	...	...	...	...	2	—
Mumps	...	...	...	...	1	1
Rheumatism	...	...	...	...	94	1
Syphilis—Secondary	...	...	...	...	21	5
Tuberculosis	...	...	...	...	6	—
Whooping Cough	..	...	...	...	5	4
Yaws	...	...	...	...	2	—
Pyrexia	...	...	...	...	145	5
Vaccinia general	...	...	...	...	1	—
INTOXICATIONS.						
Pellagra	...	...	...	...	1	—
GENERAL DISEASES.						
Debility	...	...	...	...	10	5
LOCAL DISEASES.						
Nervous System :—Convulsions					3	—
Sciatica					1	—
Paralysis					1	—
Epilepsy					3	—
Neuralgia					139	8
Hysteria					1	—
Neurasthenia					2	—
Migraine					4	2
Headache					31	—
Diseases of the eye—						
Conjunctivitis					78	7
Keratitis					1	—
Ulceration of Cornea					1	—
Diseases of the ear—						
Inflammation					62	10
Other Diseases					8	2
Diseases of the Nose :—						
Catarrh					23	—
Rhinitis					2	—
Diseases of the Circulatory System—						
Valvular Mitral					1	—
Cardiac dilatation					1	—
<i>Carried forward</i>					1,121	115

TABLE VII.—OUT-PATIENTS.—*Continued.*

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1918.

Diseases.				Male.	Female.
<i>Brought forward</i>				1,121	115
LOCAL DISEASES— <i>Continued.</i>					
Diseases of the Respiratory System—					
	Laryngitis	...	...	1	—
	Bronchitis	...	...	240	23
	Pleurisy	...	...	19	2
	Asthma	...	..	—	2
Diseases of the Digestive system—					
	Stomatitis	...	...	3	1
	Caries of teeth	...	...	137	50
	Pharyngitis	...	...	1	—
	Sore Throat	...	...	24	—
	Gastritis	...	...	5	—
	Dyspepsia	...	...	123	13
	Enteritis	...	...	1	—
	Diarrhœa	...	...	1234	48
	Constipation	...	...	211	26
	Colic ...	...	...	20	1
	Hæmorrhoids	...	...	2	—
	Gall stones	...	...	1	—
Diseases of the Lymphatic System—					
	Inflammation of Lymphatic Gland	...	...	4	—
	Elephantiasis	...	...	1	—
Diseases of the Urinary System—					
	Renal Colic	...	...	1	—
	Cystitis	...	...	1	1
	Dropsy	...	...	—	1
Diseases of the Generative System—					
Male Organs:—					
	Soft chancre	...	...	5	—
	Inflammation of Scrotum	...	...	4	—
	Hydrocele	...	...	7	—
	Orchitis	...	...	3	—
Female Organs:—					
	Menorrhagia	...	...	—	1
	Mastitis	...	...	—	4
Diseases of the Organs of Locomotion—					
	Osteitis	...	...	13	4
	Myalgia	...	...	55	7
	Synovitis	...	..	3	2
Diseases of Connective Tissue—					
	Cellulitis	...	...	23	8
	Abscess	...	...	53	9
Diseases of the Skin—					
	Urticaria	...	...	2	—
	Eczema	...	...	38	4
	Boil ...	...	...	50	9
	Herpes	...	...	2	—
	Oriental Sore	...	...	10	1
Total				3,418	333



TABLE VII.—OUT-PATIENTS.—*Continued.*

## RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1918.

Diseases.					Male.	Female.
<i>Brought forward</i>					3,418	333
LOCAL DISEASES.— <i>Continued.</i>						
Diseases of the Skin—						
Tinea	...	...	...	...	180	26
Ulcers	...	...	...	...	817	86
Impetigo	...	...	...	...	12	2
Pemphigus	...	...	...	...	1	2
Pruritus	...	...	...	...	1	—
INJURIES.						
Injuries—General	...	...	...	...		
Burns	...	...	...	...	5	1
Local	...	...	...	...	537	39
Tumours	...	...	...	...	1	—
Genu valgus	...	...	...	...	1	—
Snake bite	...	...	...	...	1	—
Parasites—Animal	...	...	...	...		
Bilharzia	...	...	...	...	7	—
Jiggers	...	...	...	...	—	2
Pediculi	...	...	...	...	1	—
Nematoda—						
Tricocephalus Dispar.	...	...	...	...	5	—
Strongylus	...	...	...	...	2	—
Oxyuris	...	...	...	...	1	—
Total					4,990	491

## A P P E N D I X.

## INFLUENZA.

ZOMBA,

*14th February, 1919.*

Sir,

I have the honour to submit the following report on the Epidemic of Influenza in the Nyasaland Protectorate.

Intelligence of the outbreak of this disease in the Union of South Africa reached Nyasaland about the beginning of September.

It was then stated to be of a comparatively mild type, but attended with extreme lassitude and prostration, and a low mortality.

To judge by the Union papers of the week ending the 20th of September, when the arrival of the epidemic on the Witwatersrand was reported and the natives in the Mine Compounds appeared to be principally affected, the absence of a high mortality caused the disease to be regarded as a factor not likely to interfere with the general working conditions.

In October, however, the disease assumed a more severe type, was attended with a high mortality, and spread rapidly over the Continent.

On the 18th October, Salisbury reported the presence of Influenza, and prohibited the return of invalided troops to the Union through Rhodesia.

On the 20th October, the disease made its appearance in Beira, and on the 21st seventy cases among natives were reported from Chinde.

Between the 21st and 27th October, several cases were discovered on the river boats, and on the latter date some cases were noted among natives at Chindio, the terminus of the Shire Highlands Railways in Portuguese East Africa.

The first cases were reported from Port Herald, the port of entry into Nyasaland, on the 5th November, and although every effort was made to prevent contact between these places and Limbe, the disease appeared there and in Blantyre on the 9th November.

On the 18th November it had reached Zomba, although a few cases of what, in view of later experience, might be regarded as a mild type of the disease, had previously come under notice.

Mbamba Bay, a port on Lake Nyasa, in German East Africa, next reported the disease on the 26th November, and as it was then rampant in German East Africa it is a moot point as to whether infection was conveyed thence to Mbamba Bay or from Nyasaland.

Fort Johnston remained unaffected until the 3rd December, when cases were simultaneously reported from there, from Mangoche and the Bar.

New Langenburg and Kymbila notified the presence of the disease on the 5th December, and Mwaya on the 6th.

From this date the disease made its appearance in various parts of Nyasaland, precise dates and returns, however, being difficult to obtain.

Mlanje gave the first definite figures on the 21st December, and Vua and Karonga on the 2nd of January, though there is little doubt but that these areas had been previously affected.

A recrudescence of the disease occurred among the 1/1 K.A.R. at Hilltop Camp, Mbamba Bay, on the 23rd January, where it had been reported as having died out on the 1st of that month.

At Chinde the disease had ceased, so far as Europeans were concerned, by the 6th December. But on the arrival of two military drafts from Limbe and Zomba, twenty-two relapsed cases were admitted to the hospital, and among these four deaths occurred.

The last case among the European Military was reported from Limbe on 12th December, from Zomba on 22nd December, and from Fort Johnston on the 30th December.

Blantyre has reported three or four cases among European Civilians since the 12th December, but has none now under treatment.

The return which is attached shows the number of admissions into hospital of three sections of the population, namely, Europeans, Indians and Natives. It does not refer to the general native population in the outlying parts of the various districts.

No cases of Influenza were returned in the monthly reports of District Officers during October.

On the 6th November, the Lower Shire district notified 56 cases, with three deaths. The disease was reported to be of a mild type, but in the following month it assumed a more severe form and was very prevalent among natives residing in the hills. Of 200 cases treated by the Chididi Mission, 17 died. In the month of January, however, this district appeared to be free of the disease.

The West Shire district reported cases at Chikwawa on the 27th November. The disease spread to many villages in the following month and among estate workers around Chikwawa approximately 1,799 cases were returned, with 122 deaths. The Roman Catholic Mission in this district forwarded a report on the 28th January in which 3,700 cases were returned, with 249 deaths.

In the Blantyre district report of November the existence of numerous cases was reported, but the progress of the disease was described as unexpectedly slow, particularly among Europeans. In December, however, the disease was reported to have spread rapidly throughout the district.

From the Mlanje district suspected cases were reported during the month of November, and on the arrival of a Medical Officer in December upwards a thousand cases, with several deaths were notified.

The outbreak in Zomba district commenced about the middle of November, continued throughout the following month, and abated in the early part of January.

Cases were reported from the Upper Shire district at the end of November, and in December 115 cases, with seven deaths, were returned from Ncheu and Liwonde.



Dedza district reported the appearance of the disease about the middle of December. Accurate information as to the spread of the disease in this district was difficult to obtain, as natives were suspected of hiding the more serious cases.

In the Lilongwe district five villages were reported in December as infected with the disease. In January 128 deaths were notified from this area, much of the work of attending to the sick having been done by the White Fathers.

Dowa district reported its first case towards the end of December. The disease was described as spreading rapidly, especially among villages along the Lake shore, and attended with a high mortality.

The epidemic had not reached the Marimba district at the end of December so far as Kota Kota was concerned, but several deaths were noted at Ngara and were considered to be due to influenza.

From Mombera district no cases had been reported up to the end of December.

West Nyasa district reported the disease as being very prevalent at Vua and Uvisya in December, and as having apparently ceased by the end of January.

In the North Nyasa district the first case was brought to the notice of the Medical Officer on the 22nd December. He attributes the introduction of the disease into that district by the troops and followers who passed through it on their way to Vua.

From the foregoing review it will be seen that the whole of Nyasaland has been affected by this epidemic; that the disease was introduced in the month of November when it rapidly spread throughout the Protectorate, reaching its maximum intensity in December, and declining steadily during the month of January.

Every effort was made to prevent the introduction of the disease into Nyasaland by the establishment of quarantine stations at Chinde, Chindio, and on the borders of all districts adjoining Portuguese East Africa and Rhodesia.

Influenza hospitals were opened at all centres where medical aid was available, and large quantities of requisite drugs were distributed to all District Officers and to the various missions in the Protectorate for providing medical relief to the general population who were out of reach of hospitals and dispensaries.

The epidemic, coming as it did on the close of the East Africa Campaign, taxed the energies of my staff to its utmost limit and resulted, I regret to add, in the death of two Medical Officers and a Nurse, in addition to eleven N.C.O's and Men of the South African Medical Corps.

Appended is a return of cases, deaths and percentages of case-mortality treated in the various Influenza hospitals.

I have the honour to be,

Sir,

Your obedient servant,

H. HEARSEY,

*Lt-Col.*

*A.D.M.S. and P.M.O.,*

*Nyasaland Protectorate.*

To

THE HON. THE CHIEF SECRETARY.

## INFLUENZA.

Hospitals.		Europeans.			Indians.			Natives.		
		Cases.	Deaths.	Rate per cent.	Cases.	Deaths.	Rate per cent.	Cases.	Deaths.	Rate per cent.
Chinde	Mil.	50	4	8	—	—	—	—	—	—
	Civ.	106	3	2·8	29	1	3·44	792	85	10·23
	Total.	156	7	4·5	29	1	3·44	792	85	10·23
Chindio. Port Herald.	Mil.	11	—	—	—	—	—	141	29	20·6
	Civ.	1	—	—	9	—	—	48	4	8·3
	Total.	12	—	—	9	—	—	189	33	14·4
Limbe.	Mil.	243	11	4·5	7	—	—	A. 732	42	5·7
	Civ.	—	—	—	6	—	—	O. 687	117	17
	Total.	243	11	4·5	13	—	—	1,419	159	11·2
Blantyre.	Mil.	4	—	—	—	—	—	125	10	8
	Civ.	35	3	8·5	23	9	39·1	171	12	7·1
	Total.	39	3	8·5	23	9	39·1	296	22	7·4
Zomba.	Mil.	456	26	5·7	—	—	—	A. 1,126	126	11·1
	Civ.	26	—	—	16	5	33·1	O. 1,759	177	10·05
	Total.	482	26	5·7	16	5	33·1	2,885	303	10·5
Fort Johnston Changali Mbewe Mangoche & Bar.	Mil.	273	12	4·4	—	—	—	A. 811	56	6·9
	Civ.	—	—	—	33	2	6	O. 1,547	188	12·1
	Total.	273	12	4·4	33	2	6·0	2,358	244	10·3
Mbamba Bay.	Mil.	34	1	3	—	—	—	A. 340	6	1·7
		—	—	—	—	—	—	O. 176	9	5·1
	Total.	34	1	3	—	—	—	516	15	2·9
New Langenburg Mwaya.	Mil.	172	7	4	—	—	—	A. 662	16	2·4
		—	—	—	—	—	—	O. 1,502	148	9·8
	Total.	172	7	4	—	—	—	2,164	164	7·5
Vua.	Mil.	5	—	—	—	—	—	O. 354	44	12·6
Karonga.	Civ.	—	—	—	—	—	—	O. 2,569	561	21·8
Mlanje.	Civ.	2	—	—	6	2	33·3	O. 785	54	6·8
Grand Total.		1418	67	4·7	129	19	14·7	14,327	1,683	11·7

A—ASKARI.

O—OTHER NATIVES.

